



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/876,290	06/07/2001	Yoshiyuki Yanagisawa	09792909-5046	9540
33448	7590	06/07/2004	EXAMINER	
ROBERT J. DEPKE LEWIS T. STEADMAN HOLLAND & KNIGHT LLC 131 SOUTH DEARBORN 30TH FLOOR CHICAGO, IL 60603			GRAYBILL, DAVID E	
			ART UNIT	PAPER NUMBER
			2827	

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/876,290

Applicant(s)

YANAGISAWA ET AL.

Examiner

David E Graybill

Art Unit

2827

*Am*

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 11-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 11-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 June 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Art Unit: 2827

The following is a quotation of 37 CFR 1.84 Standards for drawings:

(p) Numbers, letters, and reference characters.

(1) Reference characters (numerals are preferred), sheet numbers, and view numbers must be plain and legible, and must not be used in association with brackets or inverted commas, or enclosed within outlines, e.g., encircled. They must be oriented in the same direction as the view so as to avoid having to rotate the sheet. Reference characters should be arranged to follow the profile of the object depicted.

(2) The English alphabet must be used for letters, except where another alphabet is customarily used, such as the Greek alphabet to indicate angles, wavelengths, and mathematical formulas.

(3) Numbers, letters, and reference characters must measure at least .32 cm. (1/8 inch) in height. They should not be placed in the drawing so as to interfere with its comprehension. Therefore, they should not cross or mingle with the lines. They should not be placed upon hatched or shaded surfaces. When necessary, such as indicating a surface or cross section, a reference character may be underlined and a blank space may be left in the hatching or shading where the character occurs so that it appears distinct.

(4) The same part of an invention appearing in more than one view of the drawing must always be designated by the same reference character, and the same reference character must never be used to designate different parts.

(5) Reference characters not mentioned in the description shall not appear in the drawings. Reference characters mentioned in the description must appear in the drawings.

(q) Lead lines. Lead lines are those lines between the reference characters and the details referred to. Such lines may be straight or curved and should be as short as possible. They must originate in the immediate proximity of the reference character and extend to the feature indicated. Lead lines must not cross each other. Lead lines are required for each reference character except for those which indicate the surface or cross section on which they are placed. Such a reference character must be underlined to make it clear that a lead line has not been left out by mistake. Lead lines must be executed in the same way as lines in the drawing. See paragraph (l) of this section.

(r) Arrows. Arrows may be used at the ends of lines, provided that their meaning is clear, as follows:

(1) On a lead line, a freestanding arrow to indicate the entire section towards which it points;

(2) On a lead line, an arrow touching a line to indicate the surface shown by the line looking along the direction of the arrow; or

(3) To show the direction of movement.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because "FIG.5" does not include the reference sign "h" mentioned in the description at page 20, line 14.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(1)

because reference characters 4 and 16 are used in association with brackets.

The drawings are objected to as failing to comply with 37 CFR 1.84(q) because reference characters 1, 3 (FIG.3), 30, 40, 100, 101 and 110 do not have required lead lines.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4)

because the same parts of the invention appearing in more than one view of the drawing are designated by different reference characters as follows:

Art Unit: 2827

FIG.1(b) and FIG.1(c), characters 101a, 101b, 101c and 101d;

FIG.4, characters 3 and 19.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because the same reference character is used to designate different parts as follows:

Characters 101a, 101b, 101c and 101d each designate the entire sections of the different parts labeled FIG.1(b) and FIG.1(c);

Character 2 designates the entire sections of the different parts labeled FIG.2(b) and FIG.2(c) and the different part of FIG.5(b);

Characters 2a, 2b, 2c and 2d each designate the different parts labeled FIG.1(b) and FIG.1(c), and the different parts of FIG.2(d), FIG.2(e), FIG.2(f), FIG.3 and FIG.4;

Character 3 designates the entire sections of the different parts labeled FIG.2(d), FIG.2(e) and FIG.4.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following claimed features must be shown or the features canceled from the claims. No new matter should be entered.

Claim 2, a box-shaped member which is positioned on said base member;

Claim 3, a box-shaped member which is positioned on said base member; the embodiment comprising the height restriction mechanism and the plurality of positioning pins which are formed in the mother substrate; and the embodiment comprising a box-shaped member which is positioned on said base member, the height restriction

Art Unit: 2827

mechanism and the plurality of positioning pins which are formed in the mother substrate;

The entirety of claims 6, 7, 12 and 13.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Information on current drawing correction practice is available at <http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/moreinfoamdtprac.htm>

The objection to the drawings will not be held in abeyance.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 7, 12 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The undescribed subject matter is the entirety of claims 7, 12 and 13.

Claims 2, 3, 6, 7, 12 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims contains subject matter which was not described in the specification in such a way as to enable one

Art Unit: 2827

skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The undescribed subject matter is the following:

Claim 2, a box-shaped member which is positioned on said base member;

Claim 3, a box-shaped member which is positioned on said base member; the embodiment comprising the height restriction mechanism and the plurality of positioning pins which are formed in the mother substrate; and the embodiment comprising a box-shaped member which is positioned on said base member, the height restriction mechanism and the plurality of positioning pins which are formed in the mother substrate;

The entirety of claims 6, 7, 12 and 13.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2 and 3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The following is a quotation of MPEP 2111.01 [R-1]:

THE WORDS OF A CLAIM MUST BE GIVEN THEIR "PLAIN MEANING" UNLESS THEY ARE DEFINED IN THE SPECIFICATION

While the \*\* claims of issued patents are interpreted in light of the specification, prosecution history, prior art and other claims, this is not the mode of claim interpretation to be applied during examination. During examination, the claims must be interpreted as broadly as their terms reasonably allow. This means that the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification. In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) (discussed below); MSM Investments Co. v. Carolwood Corp., 259 F.3d 1335, 1339-40, 59 USPQ2d 1856, 1859-60 (Fed. Cir. 2001). One must bear in mind that, especially in nonchemical cases, the words in a claim are generally not limited in their meaning by what is shown or disclosed in the specification. It is only when the specification provides definitions for terms appearing in the claims that the specification can be used in interpreting claim language. In re Vogel, 422 F.2d 438, 441, 164 USPQ 619, 622 (CCPA 1970).

Art Unit: 2827

In claims 2 and 3 the scope of the term "box-shaped" is unclear because the term has no plain meaning, and it is not otherwise clearly defined in the disclosure. In particular, the scope of the term "box-shaped" cannot be determined because a box does not have a particular defined shape.

Claims 1-7 and 11-13 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are those between the following:

Claim 1, the position restriction mechanism, height restriction mechanism and alignment mechanism;

Claim 2, (a) the height restriction mechanism, alignment mechanism and box-shaped member, (b) the height restriction mechanism, alignment mechanism and base member, (c) the height restriction mechanism, alignment mechanism and storage space, and (d) the height restriction mechanism, alignment mechanism and inner wall;

Claim 3, (a) the height restriction mechanism and alignment mechanism, (b) the height restriction mechanism and box-shaped member, (c) the height restriction mechanism and base member, (d) the height restriction mechanism and storage space, (e) the height restriction mechanism and inner wall (f) the height restriction mechanism and pins, (g) the height restriction mechanism and holes, and (h) the height restriction mechanism and substrate;

Art Unit: 2827

Claim 4, (a) the position restriction mechanism, height restriction mechanism and alignment mechanism, (b) the height restriction mechanism, alignment mechanism and pins, (c) the height restriction mechanism, alignment mechanism and base member, (d) the height restriction mechanism, alignment mechanism and portions, and (e) the height restriction mechanism, alignment mechanism and modules;

Claim 5, (a) the position restriction mechanism, height restriction mechanism and alignment mechanism, (b) the height restriction mechanism, alignment mechanism and pins, (c) the height restriction mechanism, alignment mechanism and base member, (d) the height restriction mechanism, alignment mechanism and holes, and (e) the height restriction mechanism, alignment mechanism and modules;

Claim 6, (a) the position restriction mechanism, height restriction mechanism and alignment mechanism, (b) the height restriction mechanism, alignment mechanism and pins, (c) the height restriction mechanism, alignment mechanism and base member, (d) the height restriction mechanism, alignment mechanism and holes, (e) the height restriction mechanism, alignment mechanism and modules, (f) the height restriction mechanism, alignment mechanism and hole, and (g) the height restriction mechanism, alignment mechanism and substrate;

Claim 7, (a) the position restriction mechanism, height restriction mechanism and alignment mechanism, (b) the position restriction mechanism, alignment mechanism and cover member, and (c) the position restriction mechanism, alignment mechanism and modules;



Art Unit: 2827

Claim 11, (a) the position restriction mechanism and alignment mechanism, and (b) the height restriction mechanism and alignment mechanism.

Claim 12, (a) the position restriction mechanism, and alignment mechanism, (b) the height restriction mechanism and alignment mechanism, (c) the position restriction mechanism and pins, (d) the height restriction mechanism and pins, (e) the position restriction mechanism and sides, (f) the height restriction mechanism and sides, (g) the position restriction mechanism and modules, and (h) the height restriction mechanism and modules.

Claim 13, (a) the position restriction mechanism, and alignment mechanism, (b) the height restriction mechanism and alignment mechanism, (c) the position restriction mechanism and pins, (d) the height restriction mechanism and pins, (e) the position restriction mechanism and modules, and (f) the height restriction mechanism and modules.

In the rejections infra, generally, reference labels are recited only for the first recitation of identical claim elements.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-7 and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Levy (5869353).

Art Unit: 2827

At column 4, line 8 to column 8, line 21, Levy teaches the following:

A multilayer semiconductor device assembly jig, comprising: a lateral position restriction mechanism 70, 74, 80 for positioning a plurality of stacked semiconductor modules 12 on a base member 68 with their respective lateral positions mutually restricted; a height restriction mechanism 80 for restricting an entire height of said semiconductor modules layered on said base member, and an alignment mechanism for providing alignment with reference to a mother substrate 74, and further wherein a plurality of the semiconductor modules are each comprised of a single semiconductor chip 14 secured to a printed wiring board 22 that has electrical connections 26, 60 on a top and bottom surface thereof and wherein a plurality of adjacent printed wiring board members are secured to one another by solder connections between top and bottom surfaces thereof; comprising a box-shaped member 74, 80 which is positioned on said base member and having a storage space for storing said semiconductor modules in a layered state, wherein an inner wall of said storage space constitutes said lateral position restriction mechanism; wherein said alignment mechanism comprises a plurality of positioning pins 70 and positioning holes 76 for receiving the positioning pins which are correspondingly formed in said box-shaped member and said mother substrate; wherein said position restriction mechanism further comprises a plurality of positioning pins 70 secured in said base member and which are used for securing at least three different portions of an outer periphery of said semiconductor modules; wherein said position restriction mechanism further comprises a plurality of positioning

Art Unit: 2827

pins secured in said base member and which pierce through positioning holes 36 formed in said semiconductor modules; wherein said positioning pins also pierce through a positioning hole formed on said mother substrate; wherein said height restriction mechanism further comprises: a cover member 74 secured over said semiconductor modules.

A multilayer semiconductor device assembly jig comprising: a lateral position restriction mechanism for positioning a plurality of stacked semiconductor modules 32, 34 on a base member with their respective lateral positions mutually restricted, the lateral position restriction mechanism comprised of two opposed side walls 80 having a single stack of the semiconductor modules therebetween; a height restriction mechanism 74 for restricting an entire height of said semiconductor modules layered on said base member, said height restriction mechanism being located directly above the stacked semiconductor modules; and an alignment mechanism 70 for providing alignment with reference to a mother substrate 74 and further wherein a plurality of the semiconductor modules are each comprised of a single semiconductor chip secured to a printed wiring board that has electrical connections on a top and bottom surface thereof and wherein a plurality of adjacent printed wiring board members are secured to one another by solder connections between top and bottom surfaces thereof; wherein the alignment mechanism is comprised of a plurality of vertical pins arranged adjacent and in contact (at least thermal and indirect physical contact) with sides of the stacked

Art Unit: 2827

semiconductor modules; wherein the alignment mechanism is comprised of a plurality of vertical pins that extend through the stacked semiconductor modules.

Applicant's amendment and remarks filed 4-5-4 have been fully considered, are addressed by the rejections *supra*, and are further addressed *infra*.

Applicant contends that claims 2 and 3 are improperly rejected because the term "box-shape" appears in patent claims.

This contention is respectfully deemed unpersuasive because the claims are not rejected for use of the term "box-shape"; rather, they are rejected for use of the term "box-shaped." In addition, it is respectfully noted that MPEP 1701 admonishes: "Every patent is presumed to be valid, 35 U.S.C. 282, first sentence. Public policy demands that every employee of the Patent and Trademark Office refuse to express to any person any opinion as to the validity or invalidity of, or the patentability or unpatentability of any claim in any U.S. patent." Further, it is well settled that the allowance of claims in one application has no relevancy in the consideration of the question of patentability of claims in another application; *In re Greider et al.* 54 USPQ 139 [CCPA 1942]. *In re Albert C. Fischer* 8 USPQ 481 [1931].

Relatedly, applicant asserts that Fig.5(a) defines the term "box-shape."

The following is a quotation of MPEP 2111.01 [R-1] (as cited *supra*):

**THE WORDS OF A CLAIM MUST BE GIVEN THEIR "PLAIN MEANING" UNLESS THEY ARE DEFINED IN THE SPECIFICATION**

While the \*\* claims of issued patents are interpreted in light of the specification, prosecution history, prior art and other claims, this is not the mode of claim interpretation to be applied during examination. During examination, the claims must be interpreted as broadly as their terms reasonably allow. This means that the words of the claim must be given their plain meaning unless applicant has provided a clear definition in the specification. *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) (discussed below); *MSM Investments Co. v. Carolwood Corp.*, 259 F.3d 1335, 1339-40, 59 USPQ2d 1856, 1859-60 (Fed. Cir. 2001). One must bear in mind that, especially in nonchemical cases, the words in a claim are generally not limited in their meaning by what is shown or disclosed in the specification. It is only when the

Art Unit: 2827

specification provides definitions for terms appearing in the claims that the specification can be used in interpreting claim language. In re Vogel, 422 F.2d 438, 441, 164 USPQ 619, 622 (CCPA 1970).

This allegation is respectfully traversed because Fig.5(a) is not, and applicant has not otherwise provided, a clear definition of the term “box-shaped” in the specification.

In addition, applicant argues that, “Levy provides no teaching or suggestion towards Applicant’s currently claimed invention, which provides for an assembly jig to restrict the height of the resulting multi-layered semiconductor module to a consistent and repeatable value, and to suppress deformation due to warp of the layered printed circuit boards.”

This argument is respectfully deemed unpersuasive because the scope of the claims is not limited to an assembly jig to restrict the height of the resulting multi-layered semiconductor module to a consistent and repeatable value, and to suppress deformation due to warp of the layered printed circuit boards, and Levy is not necessarily applied to the rejection for this teaching.

In addition, appellant proffers particular advantages for the instant claimed invention.

Regardless, it is respectfully submitted that reasons for, or advantages resulting from, doing what the applied prior art has suggested, is not demonstrative of nonobviousness. In re Kronig 190 USPQ 425, 428 (CCPA 1976); In re Lintner 173 USPQ 560 (CCPA 1972). Indeed, the prior art teaches the claimed invention; therefore, the alleged reason or advantage is an inherent result of the prior art process.

Art Unit: 2827

Furthermore, the prior art motivation or advantage may be different than that of applicant while still supporting a conclusion of obviousness. In re Wiseman 201 USPQ 658 (CCPA 1979); Ex Parte Obiaya 227 USPQ 58 (Bd. of App. 1985).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**Any telephone inquiry of a general nature or relating to the status (MPEP 203.08) of this application or proceeding should be directed to Group 2800 Head SAE Linda Hodge-Taylor whose telephone number is 571-272-1585.**

Any telephone inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Graybill at (571) 272-1930. Regular office hours: Monday through Friday, 8:30 a.m. to 6:00 p.m.

The fax phone number for group 2800 is (703) 872-9306.



David E. Graybill  
Primary Examiner  
Art Unit 2827

D.G.  
4-Jun-04